THESIS for the DEGREE of

DOCTOR of MEDICINE.

N E U R A S T H E N I A G A S T R I C A

by

John Honeyford

M.B., Ch.B.

M. D. 1912.

I N D E X.

NEURASTHENIA GASTRICA.

Definition.

Gastric neurasthenia or nervous dyspepsia, may be defined as an affection of the stomach of nerve origin, in most cases associated with an irritative dyspepsia.

Neurasthenia gastrica occurs in persons of a neurotic type. The majority of cases are males, and it is met with in people of all ages except the very young. The affection often manifests itself after emotional excitement and mental, physical and moral excesses. It is characteristic of the complaint that the gastric disturbance does not trouble the patient until a variable period after food; and it has been observed that the distress is absent when the stomach is empty.

Etiology.

According to Leube,(1) nervous dyspepsia is a group of symptoms essentially of a cerebral nature due to an abnormal irritability of the Gastric sensory nerves,

occurring independently of any demonstrable changes in the stomach.

On the other hand, Stiller[2] includes, under this title of nervous dyspepsia, all those conditions in which there is a predominance of digestive disturbances which are reflected back upon the stomach from, and by means of, the central nervous system and the sympathetic respectively, and which may incidentally cause definite changes in its functions.

Since the publication of his first paper, Leube has widened the conception of nervous dyspepsia by his inclusion of anomalies of secretion and motility. More recently the same observer has divided the affection into two classes:

I. Nervous dyspeptic symptoms in which the nervous channels are sympathetically involved by anatomical changes in the stomach, and altered chemistry of digestion caused by these changes.

II. Nervous Dyspepsia with an apparently normal

anatomical state of the stomach.

R. Geigel and Abend[3] ascertained that the secretion of HCl may vary considerably in gastric neurasthenia, and that there may be a normal acidity (euchlorhydria), subacidity or hyperacidity.

Ewald, after a careful study of the digestive processes, found changes in the chemical functions in quite a large number of cases in which the nervous symptoms were the prominent feature.

In addition to the two classes of Nervous Dyspepsia described by Leube, Boas has distinguished a third which he states is caused by reflexes from other organs such as the intestine, kidneys, male genito-urinary tract, uterus and ovaries. Philip Hicks[4] has lately drawn attention to the occurrence of indigestion in neurasthenics with movable kidney, and in his opinion, the left kidney is mainly responsible for the dyspepsia, a fact which is only to be expected on anatomical grounds.

The association of neurasthenia with gastroptosis

is a subject which has not yet been fully investigated. Now, among ordinary observers, Glenard came to the conclusion that enteroptosis was a causative factor in the establishment of neurasthenia. This statement, however, has been shown to be erroneous as no symptoms of neurasthenia have been detected in many cases where both gastroptosis and enteroptosis were present.

Examining the alimentary canal by means of the X rays, Hertz[5] "has been much struck by the fact that severe gastroptosis is not uncommon in individuals whose abdominal muscles are well developed, and whose other viscera do not appear to drop excessively when the erect posture is assumed." The same writer has observed that the lowest part of the stomach can be lifted between two and four inches by voluntary contractions of the abdominal muscles, and it can be caused to drop by their voluntary relaxation.

Stiller[6] has discovered the presence of a floating tenth rib in some cases of neurasthenia with gastroptosis: and endeavours to prove that the gastroptosis

and floating rib are symptoms of the neurasthenia. But the consensus of present day opinion favours the idea that gastroptosis is the result or concomitant of neurasthenia, and that once set up it frequently establishes symptoms of its own.

It is an undoubted fact that, with the modern intragastric methods of diagnosis the number of cases, which were formerly classed as of nerve origin, is becoming much smaller. Boardman Read (7) says "nervous dyspepsia may ultimately ceased to be classed as a distinct type of disease when our methods of diagnosis shall have become more perfect."

On investigation nearly all the cases which have come under my notice presented some excess of HCl. But, that hyperacidity in itself would hardly be sufficient to account for the nervous symptoms of the cases. Now, the question arises: is this form of gastric neurasthenia with hyperchlorhydria not an irritative or sthenic dyspepsia superimposed on a general

neurotic state: or, conversely, has the general neurasthenic condition been a predisposing factor in the selection of the gastric organ for the outlet of its symptoms ? Hemmeter[8] of Baltimore states that "whatever the underlying basis or etiology of the d disease, the ultimate symptoms can be ascribed to a functional sensory neurosis and overexcitability of the gastric nerves, which may become so acute that they react in a pathological manner upon the influence of normal digestive stimulation." "In my opinion" writes Ewald,[9] "there can be no doubt that these dyspeptic conditions are the manifestation of general neurasthenia. In rare cases this may be developed only in the nerves of the stomach and intestines, and apparently the lesion is one of the peripheral nerves. In the vast majority of cases these local symptoms are combined with others of a nervous nature, and among which they occupy a pre-eminent place."

Pathology.

Jürgens[10] discovered a complete degeneration of Meissner's and Auerbach's plexuses in an examination of forty-one patients who, when alive, had complained of vague dyspeptic disturbances. Where the disturbance was of a more sensory character he found "a degeneration of the muscularis mucosae of the stomach and of the intestines also, and a pronounced formation of varices in the intestinal walls, the exact examination of which revealed a degeneration not alone of the muscular fibres of the veins, but also of the sensory nerves and of the branches of Meissner's plexus in the vicinity."

Working on the pathology of neurasthenia, Hodge has shown by his experiments on pigeons, swallows and bees how fatigue affects the nerve cells of these animals. Again, Mosso injected the blood of an animal, exhausted from fatigue, into another at rest, and then obtained signs of fatigue in the latter.

But it is recognized that, in the great majority

of cases suffering from nervous indigestion, no definite changes of a direct or reflex character can be discovered in the nerves outside the stomach which may be referred to that organ, or may cause any immediate disturbances of gastric digestion.

A predisposition to neurasthenia may be acquired through personal influences of an exciting and exhausting nature such as overwork with continuous fatigue, certain vices and alcoholic excesses, over-indulgence in narcotic substances such as tea, coffee, tobacco &c., late hours and the want of sufficient sleep. Life in the circles of high society is often a frequent cause of neurasthenia especially of the gastric type. Take for example the daily routine of a society lady:- she is awakened at 8 a.m. and partakes of tea and toast. an hour or so later the process of digestion is disturbed by breakfast, and then to relieve the "sinking sensation" perceived about 11 o'clock she adds a cup of tea to the already over-taxed stomach. Lunch, which takes place at 1.30, is followed during the afternoon

by cups of tea at the various "At Homes" to which our lady betakes herself. Dinner comes along at 7 o'clock and once again the murmurings of gastric rebellion are temporarily hushed by the ingestion of food in quantities far in excess of the normal requirements. Then there follows a round of gaiety and excitement until the small hours of the morning when she has a more or less heavy supper. Then she probably passes the night in a broken unrestful sleep to enter upon another day of the same character as the one we have depicted. No wonder, if, after a few years of this life, the digestion breaks down and neurotic symptoms become manifest.

Again, in the pathology of neurasthenia, heredity plays a most important part. Certain conditions in the parent act as predisposing factors in weakening the nervous system of the child. Mental and physical debility, alcoholic and sexual excesses, tubercle, syphilis, youthfulness or extreme age and neuroses of the parents are amongst the many influences of a

causative nature.

It is now recognized that some people are specially susceptible to neurasthenia during convalescence from influenza and other acute diseases. Recently I saw a case of a girl aged 22 presenting symptoms of neurasthenia after recovery from acute rheumatic fever. The father of this patient had a neurotic history and the mother was somewhat alcoholic. Another predisposing element in neurasthenia is a modern one, namely over-indulgence in athletics; and it has been recorded that the affection has been excited after a course of athletics at a physical training college.

In the majority of cases there seems to be some defect in the metabolic processes of the body but how that defect arises is not yet properly understood. There is a probability that some substances introduced from without, or created within the body, have an intoxicating or deleterious influence on the nervous mechanism of the cells of which the body is constructed.

In addition to the above, want of sufficient and suitable nutriment, mal-assimilation of food and continual over-stimulation frequently result in the exhaustion of the body-cells.

Now, there are two principal factors necessary for the continuance of the vitality of the cell—a proper and sufficient supply of nerve-energy and a certain degree of nourishment. Without these the work of the cell can only be imperfectly performed. As a consequence the metabolic processes are deranged and poisonous products may be formed which, circulating in the blood, perpetuate the vicious circle so established by an action on nerve tissue, secreting cells and muscle substance. Pursuing this theory it is easy to conceive how these abnormal products of cell-exhaustion would react upon the tissues in general. Owing to defective working of the cells changes of a chemical nature in the tissues would not be physiologically performed but would probably terminate in the production of toxins.

These nitrogenous toxaemic substances then, passing through the general circulation, may possess a selecting influence on certain cells and in this manner establish neurasthenia. In these cases the gastric distress may be due to some hypersensitive state of the sensory nerves of the stomach, diminution of nerve energy necessary for the maintainance of tonicity in muscular structure of the gastric walls, and to an excess, deficency or abnormality of production in the secreting cells.

Symptomatology.

The patient is usually a man of middle age who comes complaining of indigestion and gastric pain. He probably has a history of dyspepsia lasting for a few months or perhaps years, but lately his symptoms have become more pronounced and now he is suffering acute pain. He is losing weight; his appetite is fairly good but he is afraid to satisfy it on account of the pain which he knows will follow, and probably this fact explains his loss of weight. His face looks haggard and woful. He complains of great mental depression and physical lassitude, and seldom has a good night's sleep. Headaches are of frequent occurrence and these are either occipital or frontal in position. The patient is generally constipated and has vague sensations of rumblings and gurglings in the abdomen. He may even state that he feels as if "something living were in his inside." He complains that he cannot concentrate his mind on his work and has lost all the

energy he, at one time, possessed. Former interests lack their previous attraction. Everything is viewed in a pessimistic light. He is distressed by the morbid thoughts which occupy his mind. Probably, more than once, he has even contemplated suicide, but in his better moments the very suggestion of self-destruction fills him with terror, and he is in constant dread of his utter inability of controlling himself when some powerful auto-suggestion forces itself upon the mind. A few months ago, perhaps, he used to suffer from irregular pains in the stomach but now, he says, the painful sensations are more severe; they come on at regular periods and render his life wretched. No uneasiness is felt during the ingestion of food, and for some time after the meal the patient experiences no discomfort, but as the time lengthens to 3 or 4 hours he becomes conscious that some disturbing factor is at work. First a "sinking sensation" in the epigastrium is noticed, and then an oppressive feeling of fulness

with a tightness in the chest muscles attracts the patient's attention. Colic-like pains in the region of the stomach are followed by eructations which seem to afford a certain degree of relief to the distressful condition of the patient, and, consequently, he swallows air in order that belching may be encouraged. Heartburn, waterbrash and actual pain now increase the general misery. The pain is burning in character but not definitely localised. It frequently shoots through to the back, and direct epigastric pressure only accentuates the discomfort. Vomiting is rare but in some cases it occasionally takes place, and to some extent alleviates the distress. Indeed, many patients being aware of this fact often provoke emesis to obtain relief. Various other sensations may intrude themselves at this stage. Palpitation, shortness of breath, hiccoughing, excessive and uncontrollable yawning, and vertigo are often experienced. When the condition has reached this height, mouthfuls of the

highly acid stomach contents regurgitate, smarting the tissues and causing great pain.

The patient finds that his symptoms are sometimes relieved by taking food; and while that is so, he soon recognizes that this method of allaying his discomfort is only of temporary benefit. No abiding relief is obtained; the evil hour is but postponed. The thought overwhelms him, and he becomes more and more nervous, introspective and melancholic. Should he chance to sleep when he retires, he is usually awakened between four and five o'clock in the morning by heartburn, sneezing, pyrosis and all the other symptoms with which he is too familiar.

On examining the patient, a certain amount of tenderness is caused on pressing the epigastrium. Sometimes the tenderness is localised in the middle line though in other cases it appears to be more or less diffuse. The stomach, perhaps, is found to be somewhat dilated, and splashing sounds may be elicited

in some of the cases.

Burkhart[11] drew attention to the occurrence of painful spots in the abdomen. He claims to have found these painful areas in all cases, on pressing deeply over the region of the hypogastric aortic and coeliac plexuses. The pain, which is extremely sharp and unpleasant, radiates to the epigastrium. Leven[12] attaches great importance to these painful points which, he considers, are due to an irritation of the solar plexus. But, Fleischer, Bouvert, and Ewald[13] assert that the painful areas do not occur in all cases and do not think they are worthy of much attention as they are not characteristic of the complaint.

In most cases of gastric neurasthenia the carbohydrate portion of the food is not sufficiently acted upon, constipation is usually well marked, and there is a probability that a lesion may exist in the nerves which preside over the functions of the stomach, liver and pancreas. Actual lesions in the digestive tract may

be produced in cases of long duration. Dilatation of the stomach follows myasthenia and then gastric fermentation occurs which may terminate in chronic gastritis. Mobius[14] was one of the first to observe that intestinal neurotic symptoms were present in addition to the gastric derangement. The commonest form is a variety of colitis marked by constipation, colicy spasms and the passage of glairy mucus. This is not a real colitis but a simple neurosis, and it must be differentiated from the condition known as muco-membranous colitis. The latter is an affection of secretion accompanied by chronic inflammation of the colon, and characterized by the passage of membranous shreds as well as mucus. The colic-like pain of mucous colitis is not localised in any definite portion of the abdomen and is usually perceived after a period of constipation. In muco-membranous colitis, however, the disturbing influence is of a heavy, dull and persistent nature situated in the neighbourhood of the descending colon.

In some cases the symptoms of imperfect intestinal digestion are not well marked and are only restricted to the consequences of increased or lessened peristalsis --- diarrhoea or constipation --- most usually the latter; or there may be a disturbance in absorption withoutthe stools losing their normal character. Some months ago I saw such a patient. Her appetite was good, in fact, at times it was vigorous but emaciation was progressive and pronounced. Other intestinal symptoms are rumblings, gurglings, excessive flatulence and vague sensations of "lumpiness" in the abdomen. Some patients are so much worried regarding the "rumblings in their inside" that they will not go to church or attend social getherings. Retraction of the abdomen is seldom in evidence; generally it is somewhat distended and tympanitic, while in certain cases the escape of flatus causes the sufferer great discomfort. Cherchewsky (15) classified the severer intestinal symptoms into a distinct group but without any apparent advantage as these symptoms are so extremely

variable; and, practically, no two cases are precisely similar.

Many of the gastro-neurasthenic symptoms may be in some way related to imperfect intestinal digestion owing to the formation of toxins during the putrefaction of food. Two American observers Herter and Smith[16] have published detailed analyses of cases showing the relationship of psychical disturbances, melancholia etc. to the toxicity of the urine. It is conceivable then, that the production of melancholia, globus hystericus, insomnia, palpitation, headache and exhaustion may have some connection with the intestinal putrefaction. Should the gastric neurasthenia be of short duration the manifestations are confined to the alimentary canal; but in cases where the affection has existed for a considerable period the digestive symptoms may be masked by the nervous and consequently it is sometimes difficult to decide whether the latter or the former constitute the primary derangement.

CASES ILLUSTRATING NEURASTHENIA GASTRICA.

Case I.

Mr J. B., aged 45, unmarried, a business man who had suffered from nervousness and indigestion for seven or eight years, came complaining of severe discomfort in his stomach which in the course of three or four hours after food, amounted to actual pain. He has led a sedentary life and has little time or inclination for outdoor exercise. Mentally he suffers great depression and physically he is week. His neurasthenia has progressed to such an extent that he now avoids society, refrains from church attendance and appearing, during daylight, in the local streets. He has an extreme dread of closed spaces --- Claustrophobia. His chief objection in this respect is travelling in railway carriages: if alone in the compartment he is quite happy but should the carriage become filled with passengers our patient imagines everybody is looking at and criticising him. His face grows warm and he is

conscious that he is blushing in spite of his best endeavours to retain his self-possession. The head becomes congested and throbs painfully and vague constricting sensations are perceived throughout the body. A clammy sweat breaks out upon his brow and his face assumes a "stiffened" expression. As the journey continues his abhorrence of the situation becomes more and more intolerable. To endure the present circumstances is agonizing: his one desire is immediate freedom. Relief, however, is only obtained by the train's arrival at the next stopping place where our patient changes to a more congenial compartment.

Though the patient possesses many other neuroses of a similar character the foregoing is sufficient to show his mental condition under an exciting cause.

He smokes one ounce of tobacco weekly; and there is no alcoholic history. The appetite is good and ever present; and there is no loss of flesh. Constipation is marked and persistent. Insomnia, frontal headache, dizziness, tinnitus aurium and congestion of

the head trouble the patient a good deal. He also complains of coldness and numbness in the extremities; the latter is particularly annoying when he sits upon a chair with a sharp edge.

In spite of his careful dietary the gastric symptoms have gradually become worse. The patient has an inordinate fondness for tea, and nothing will induce him to relinquish the habit. After meals he feels dull, sleepy and listless and is incapable of any prolonged mental effort. He is irritable and depressed. A sense of weight and fulness is complained of which develops, about four hours after food, into intense discomfort and pain. His stomach feels distended and he indulges in eructation to disperse the wind of which his stomach appears to be full. Heartburn, waterbrash, shortness of breath and noises in the head now trouble him, and he seeks relief by drinking hot water, and looking forward to the next meal --- hunger pain.

On examination, the lungs are normal. The pulse

is slow and the vessels are slightly thickened. The heart is not enlarged but there is slight accentuation of the aortic second sound. The urine is acid; Sp.G.1012 and contains no albumen or sugar.

Alimentary system: the stomach is somewhat dilated --- the lower border is one inch below the level of the umbilicus and some splashing is obtained on succussion. There is tenderness on pressure in the pyloric region; and no lump can be felt. The teeth are bad, the tongue slightly coated and the breath offensive. There is no history of vomiting or melaena. Per rectum, slight prostatic enlargement: internal haemorrhoids. The liver is not enlarged.

Under treatment the patient's gastric symptoms rapidly disappeared, but the nervousness still remains though the patient feels much better.

Case II.

Mr T. C., aged 23, a hard working and industrious student, six months ago complained of drowsiness after meals and inability to read with benefit for any length of time. Each night was a long time in bed before he fell asleep. He was greatly troubled with frontal headache and at times complained of flashes of light before his eyes. The patient grew morbid and decided to give up his studies: he was afraid of falling on the street as he occasionally lost his balance owing to, as he expressed it, the footpath moving while he appeared to be "marking time." His meals were irregular and he confessed to bolting his food when pressed for time, but there was no loss of appetite. There was no marked constipation but the motions were hard and lumpy.

Gastric uneasiness, fulness, frequent eructations and heartburn occurred about an hour before food with the development of hunger pain. On examination, the stomach was neither displaced nor dilated but

epigastric pain was present on deep pressure in the middle line. All the other organs were healthy.

With rest, a revised dietary and appropriate medicine the patient soon regained his normal health.

Case III.

Mrs E. D., aged 38, a spare lady of sedentary habits has suffered for many years from gastric acidity, flushings after food, headaches and palpitation. Sometime ago she had been told that there was an ulcer "at the pit of the stomach" and this has worried her greatly because she thought an operation was necessary. She is markedly neurasthenic and has a neurotic family history. Mentally changeable and socially erratic, she is seldom at peace with those around her and frequently accuses her friends of their seeming neglect. A lack of interest, feeling of languour and a morbid imagination are characteristic of the case.

The appetite is capricious;though the desire for food is rarely absent her hunger is easily satisfied and so she eats but sparingly. The bowels are constipated and loss of sleep is common. Between meals the patient experiences a heavy dragging sensation in the stomach. This is followed by pain which she tries to alleviate by eructations and eating biscuits. Pyrosis causes her great annoyance and the mouth is frequently sore owing to the welling-up of the highly acid stomach contents. Actual vomiting is rare and the patient has never noticed the presence of any coffee-ground material. There are painful areas along the spine; and in the intestine, some putrefaction. No melaena.

On examination:- The breath is offensive and the tongue is slightly furred, a few of the teeth are carious, and there is some decomposition in the crypts of the tonsils. The stomach is dilated and displaced, the lower bowel is 2" below the level of the umbilicus.

On succussion splashing is elicited. No lump can be seen or palpated. There is a movable right kidney. The liver is not enlarged. The urine contains some indican. In the heart there is a soft blowing systolic murmur: compensation is good.

After the patient had her mouth attended to by a dentist, she was kept at rest in bed and away from all excitement. The gastric symptoms were much relieved by abdominal massage, suitable diet and drugs. The stomach is regaining tone and the bowels are regular. The patient is much happier and not so irritable and imaginative, though the nervous symptoms have not quite disappeared. She is now wearing an abdominal support, and feels well as long as she adheres to instructions.

Case IV.

Mr A. G., aged 50, an active energetic man of gouty type who had never been seriously ill. About two

years ago, his attacks of dyspepsia began, and now they have got much worse. The attacks present the usual symptoms of hypersecretion with heartburn and flatulence, relieved by food. During the day the condition of the patient is fairly comfortable but his chief trouble is insomnia. He manages to sleep fairly well up to 4.30 in the morning when he is awakened by the gastric distress, which he temporarily relieves by soda-mint lozenges. Rarely he sleeps after that, and, if he does, he is much disturbed by nightmares.

Latterly, he has become neurotic and irritable, is tired of life, and believes he is suffering from cancer of the stomach. There is no loss of flesh. On examination free HCl was obtained: no lump or bulging could be seen or palpated. There is acute tenderness on deep epigastric pressure. The stomach is not displaced and is within normal limits. No splashing. The liver dulness is somewhat decreased. Lungs: nothing notable. Pulse: 62, regular; walls thickened.

Heart: slapping aortic 2nd sound: forcible beats.

Urine: acid, 1007, with a faint trace of albumen.

Under suitable diet, alkaline treatment, and morning saline and nightly pill, the patient recovered in a very short time.

Case V.

Mrs R., aged 33, housewife and mother of four healthy children has had severe gastric disturbance of an intermittent nature for 3 years. She is energetic and much interested in household affairs but when troubled with indigestion she cannot attend to her duties and imagines that everything is going to wreck and ruin. There is nothing of note in the family history. In her youth, she believes, she had chorea and some of the usual affections of childhood, and with the exception of occasional minor rheumatic attacks she has enjoyed good health up to the onset of the present

trouble.

The face is pale with dark rings round the eyes and the skin has an unhealthy look. The teeth are fairly good but the tongue is flabby and indented by the teeth. The breath possesses a slight foetor which now and again becomes marked. The Bowels are constipated. Frontal headache, flushing, giddiness, a feeling of faintness and a peculiar pulsating sensation in the muscles in the neighbourhood of the left hip are all observed when the gastric organ is upset. No loss of weight has been noticed and there is no evidence of bleeding from the bowel. The patient is constantly taking laxative drugs to combat the habitual constipation. She sleeps badly, and in the morning she is aware of an unpleasant taste in the mouth which passes away after breakfast.

The onset of the dyspeptic symptoms dates about 3 years ago. At first the attacks were infrequent but latterly they are uncommon and much more distressing.

In the intervening period she is quite well. After food the patient complains of dulness, lassitude, irritability and a feeling of weight in the pit of the stomach; and about an hour before the next meal the usual signs and symptoms of acidity develop: heart-burn, severe pain lancinating to the back, distention and acid eructations. Vomiting is uncommon and when it does occur one can see undigested carbohydrate particles of food.

The interesting point in this case is the state of the appetite. Generally, it is normal but periodically the patient suffers from attacks of bulimia. A short time after or mid-way between meals a terrible craving for more food seizes her. This desire must be immediately satisfied, or if neglected, she feels weak and dizzy; her heart palpitates and she is short of breath; the head becomes congested and the ears buzz with noises of various kinds. An unpleasant sinking sensation in the epigastrium, and sharp cramp-like pains

are perceived in the stomach. It is a curious fact that nothing will satiate the patient except eating large quantities of dry flour, bran, oat- or wheat-meal. No other form of food seems to satisfy her condition. Sometime afterwards the patient falls asleep and on awakening she feels quite well.

On examination: Pain on pressure over the region of stomach. The stomach as a whole appears to be displaced downwards but this is more of a "sagging" than a true displacement. The lower border is at the level of the umbilicus and no lump can be detected. No movable kidney, Liver not enlarged. Descending colon loaded with hard faecal masses. Lungs: normal. Pulse: 80, regular; no arterial change. Heart: no enlargement; a suggestion of roughness is heard leading up to the first sound in mitral area. Nothing to note in the genito-urinary system.

Placed on suitable treatment, revised dietary and massage the patient obtained much relief. She has

lost her mental depression and there has been no recurrence of the bulimia.

Case VI.

Miss W., aged 30, has been suffering from gastro-intestinal troubles for the past five years. For the last two years she has been losing flesh. Her weight has been reduced from 9 st. 12 lbs. to 7 st. 10 lbs. Her mother died from heart disease; father healthy. An elder sister suffers from gastric ulcer. When twenty years of age the patient had chlorosis with indefinite history of gastric pain. At twenty-four, had a cycling accident and strained her back: was in bed for three months and subsequently developed the usual symptoms of the so-called "railway" spine. Shortly after this occurrence the stomach condition began. Three years ago, she had acute otitis media with perforation, and, during convalescence, had an attack of acute rheumatic fever from which, under

careful treatment, she recovered without cardiac involvement. From that time onward the gastro-intestinal symptoms became more pronounced; and the patient has tried various proprietary drugs with no beneficial result, in addition to residence at many watering-places.

The appetite has always been fairly good; but in spite of her best endeavours she could not increase in weight. More recently, however, the patient has been afraid of satisfying her appetite because of the anticipated pain, which is not referred to the epigastrium but to various points in the lower abdomen.

The patient is depressed and melancholic. Irritable and petulant, she imagines everyone is against her and, altogether, considers that this world is a very unsympathetic place. To a patient listener, she takes her only pleasure in relating detailed accounts of the hardships and trials of this life.

The patient is anaemic, frail and exhausted. Constipation is sometimes obstinate. There are insomnia,

headache, facial neuralgia, pains in the back and limbs. She is very easily tired and unable to attend to her duties. Presence of globus hystericus and polyuria. Teeth good; tongue fleshy. Discomfort after food with acidity and waterbrash. She has no acute pain on epigastric pressure, but has a feeling of soreness behind the rectal resistance . The stomach is displaced two inches downwards; no evident dilatation, and no gastric lump can be felt. The left kidney is movable. The patient is very much annoyed by borborygmi and excessive intestinal flatulence. Colicy pains occur throughout the abdomen and these are especially severe when there is constipation: the pains are not localised, and they are not always in the same place.

On examination of the stools a quantity of glairy mucus with whitish flakes is seen; and it is notable that the motions have decreased in calibre. Per rectum, there is nothing of importance to be felt. Slight

leucorrhoeal discharge. The abdominal skin is hypersensitive, and the knee-jerks are exaggerated. There is no abnormality in the urine.

At first, improvement was slow but lately I heard that the gastro-intestinal symptoms have mostly disappeared. She is now sleeping well and gradually putting on flesh.

Case VII.

Mr T. S., aged 53, a commercial man, suffers now and again from gastric disturbances and severe frontal headaches which are paroxysmal in character. Up to four years ago, he had always been fairly healthy, with the exception of occasional attacks of indigestion. The patient has had a considerable amount of worry and anxiety since his failure in business six years ago. He is very easily excited and often has difficulty in controlling himself during his outbreaks of temper.

The headaches occur every two or three weeks, sometimes following indiscretion in diet, but at others,

quite independently. The patient may be in his ordinary health on retiring but in the early morning he is awakened by a feeling of weight and distention in the stomach accompanied by eructation. His head is heavy, throbbing and painful and he is dizzy and weak. Afterwards he falls into a broken sleep and a few hours later finds his condition much worse. Lancinating pains shoot through the head especially in the temporal and frontal regions.and cause him great distress. The head is congested and warm; the hands and feet are cold; there is flatulence and a sensation of soreness in the stomach, and the patient lies in bed with his eyelids closed feeling very irritable and depressed. These gastric attacks with severe head-pains pass off in a day or two and the patient remains fairly well until the next seizure.

The bowels are not constipated. The appetite is good and he is very much inclined to over-satisfy it. Vomiting never takes place. The teeth are carious

and the breath is often offensive. The pharynx is somewhat granular. On epigastric pressure there is slight tenderness mid-way between the umbilicus and the infrasternal notch. The stomach is not displaced nor is there any apparent dilatation. There is pulsation of the abdominal aorta on palpation. The radial artery is a little thickened. The heart is not dilated or hypertrophied; the second aortic sound closes sharply. The lungs are normal. In the urine there is a faint trace of albumen.

The patient is at present undergoing treatment. The attacks have lessened in frequence and severity, and his general condition is improving though a recent family trouble interrupted his progress to some extent.

Case VIII.

Miss L. C., aged 39, a stout, excitable lady who resides in the country, came complaining of dyspeptic attacks, constipation and associated nervous symptoms.

The family history is neurotic, and the patient's brothers and sisters are of nervous temperament. When 22 years of age, the patient had an attack of Enteric fever. Eight years later she had an abdominal hysterectomy for the removal of fibroids.

The patient is melancholic and apprehensive of evil, and frequently remains in bed for days if she has been annoyed in any way. Owing to extreme nervousness she sometimes refuses to take her food at table, especially when strangers are present, but is afterwards discovered eating in solitude. She has a morbid dread of the presence of extraneous articles such as pins and pieces of delph in her food, and is most particular that all earthenware should be spotlessly clean though personal improvement could be made in that direction. She continually over-indulges her vigorous appetite heedless of the subsequent effects. She has a peculiar fondness for carbohydrates generally, fats; and tea, of which she drinks, on an average, eight cups per day.

Sleep is good and prolonged: headaches are common, and constipation is obstinate. Pain, flatulence, heart-burn, shortness of breath, hiccoughing and giddiness, come on before meals. The patient is much annoyed by a tickling sensation in the throat which produces an exceedingly irritating laryngeal cough. Vomiting occurs about once a week and consists of undigested carbohydrate food. The breath is very offensive and the tongue flabby and fleshy-looking. She has five artificial teeth on a dental plate which she cleans regularly but neglects the care of her natural teeth.

On palpation in the epigastrium there is tender-ness in the middle line about two inches above the umbilicus. No lump can be perceived. The stomach is dilated, and resonance over a large area is obtained on percussion. The lower border of the stomach is just below the level of the umbilicus. There is nothing abnormal in the urine. In the heart all the sounds are closed, but there appears to be some myocardial weakness.

Under suitable dietetic and medicinal treatment the frequency of the gastric attacks was greatly reduced, and the patient gradually improved. She recognizes that, if she takes a proper amount of outdoor exercise and sufficient care regarding her food, she is comparatively well.

Case IX.

Mr J. M., aged 28, a spare anaemic-looking man of solitary habits who has, in turn, studied medicine and divinity unsuccessfully. The patient has been suffering for about a year from gastric acidity and presents many of the symptoms mentioned in the foregoing cases. As a child he was precocious and of studious habits. He avoided company and never had many companions. The patient, though not robust, never had any serious illnesses. His father is in good health but his mother is a woman of anxious nature. As a student, the patient has been remarkably unsuccessful notwithstanding

his diligence. Finding the pursuit of medicine too exacting, he turned his attention to divinity but repeatedly failed to satisfy his examiners. During that time the patient had been continually over-working himself mentally, suffered much from insomnia, and the want of sufficient out-of-door exercise. A nervous breakdown ensued --- over a year ago --- and since then his stomach has been the source of much discomfort. The patient is self-conscious, hypersensitive, and retiring, and nothing will induce him to engage in open-air recreations. Intellectually, he is obviously deficient, but there is no history of insanity in the family.

Constipation is almost always present. The appetite varies; and the patient does not seem to derive much benefit from his food. On palpation of the epigastrium some tenderness is perceived. The stomach is not apparently dilated but is somewhat ptosed when the patient is standing upright. There is

a slight dulness of the apex of the left lung. The urine contains an excess of phosphates.

The stomach symptoms have partially cleared up but there has been no sustained improvement in relation to his mental symptoms. The patient cannot be induced to live an open air life or take a holiday and his parents are powerless to influence him in any way.

Case X.

Mr C. P., aged 36, an overstrung highly excitable individual of aesthetic tastes, for two years has been troubled with discomfort, fulness, heartburn, palpitation and vertigo between meals. The dyspepsia is attributed to mental worry following the death of a very dear friend. The patient is very subject to catarrhal infection of the respiratory passages, and during the winter months of recent years he has had a constant succession of "colds". He is nervous and introspective, and faddy as regards his food. Lately

he has taken a strong aversion to walking in public unless accompanied by a sympathetic friend; and prefers side streets in order to avoid meeting uncongenial acquaintances.

He suffers considerably from panics of various kinds. In churches and crowded assemblies he chooses his seat near a door --- to facilitate his exit should such be necessary. He goes to bed late, and rises late; his sleep is unrefreshing and disturbed by night-mares; he wakens with a headache and in the mouth there is an unpleasant taste which passes off as the day advances. He takes very little open-air exercise, and prefers an indoor life. There is no alcoholic history but he smokes five ounces of tobacco per week. Now and again the patient is troubled with a looseness of the bowels which is succeeded by constipation. By degrees the patient is losing weight probably owing to the limitation in diet which he has imposed upon himself. There is no vomiting or haemorrhage.

Flushings, giddiness, noises in the head and "pins and needles" sensations in the limbs bother him to some extent: heartburn, waterbrash, distention, flatulence and "hunger pain" come on between meals.

On pressure in the epigastrium, there is tenderness which is situated just to the right of the middle line. No pyloric thickening can be perceived. The lower border of the stomach is at the level of the umbilicus and splashing is obtained two hours after food. At McBurney's Point an unpleasant sensation is caused on deep pressure but no actual pain. No rise of temperature. The pulse is 80, and there is a slight irregularity of the heart, which may be accounted for by the excessive tobacco-smoking. The lungs were carefully examined but nothing active could be detected. There is some prostatic irritation but the urine is normal. The knee-jerks are exaggerated.

It was difficult to induce the patient to discontinue his sedentary habits in favour of outdoor graduated

exercise. His tobacco consumption is now reduced to two ounces per week and his general health is much improved. Occasionally he has some gastric reminders but the patient has not felt so well for a considerable time.

DIAGNOSIS OF NEURASTHENIA GASTRICA.

A thorough and systematic examination of the patient is necessary in order to ascertain if there is an organic lesion which might account for the symptoms. Amongst the causal factors one must be careful to look for the presence of small tumours, morbid changes in the sexual organs, herniae in the linea abba, movable kidneys, gastroptosis and enteroptosis. The family history should be fully inquired into for neuroses and unstable conditions of nerve origin. The past and present histories of the patient are very important and require special attention on the part of the physician. It often happens that the investigation of the personal history discloses some idiosyncrasy or moral peculiarity which may determine the course of treatment.

In all cases where there is any doubt as to the nature of the affection a test-meal should be administered and a subsequent examination of the stomach contents carried out. To this, however, there is the

possible exception of cases in which gastric ulcer is suspected. Here, the passage of the stomach tube is fraught with danger as a mechanical injury might cause a perforation; and the information obtained is frequently of so doubtful a character that the introduction of the tube is unwarrantable. In his writings on the subject, Leube stated that, as a sign of normal digestion, the stomach should be empty six or seven hours after the ingestion of the test-meal, but the fallibility of this test has been pointed out by Rodzajewski,(17) Rosenbach, Riegal and others.

It is characteristic of gastric neurasthenia that while the symptoms may vary from day to day, according to the state of the patient's health, there is a gradual increase in the severity of the complaint. The appetite is seldom affected; and in some cases the effect produced by different kinds of food varies considerably. Vomiting is rare but it may be provoked by the patient to relieve his sufferings. The vomit

generally consists of undigested food and is not haemorrhagic. The wind which is belched up is mainly composed of atmospheric air unconsciously swallowed by the patient to aid in the production of the eructations. It is noticeable that the heartburn is usually intense and an oppressive fulness is always present. The epigastric pain is mostly diffuse and not sharply localised. There may be painful points in the abdomen and hypersensitive areas along the spine. The dilatation of the stomach which is found in many of the cases, is seldom a true atony and therefore may be looked upon as a fatigue symptom. The dilatation is easily recognized by the administration of an effervescing powder and subsequent percussion. The abnormality in the gastric secretion may vary from day to day. The stools may show changes in shape and consistence; they are principally hard and lumpy and very often contain a considerable quantity of mucus.

The associated nervous symptoms are always well marked. It is noticeable that the subjective symptoms

are out of all proportion to the actual gastric disturbance. The patients are mostly highly strung, hypersensitive, imaginative persons who are also exceedingly irritable, depressed and melancholic. Claustrophobia and various morbid dreads are found in many of the cases.

DIFFERENTIAL DIAGNOSIS.

The principal diseases from which gastric neurasthenia must be diagnosed are chronic gastritis, gastric carcinoma and gastric and duodenal ulcer. Some cases have been recorded where the presence of intercostal neuralgia has given rise to error, and though these are necessarily rare, they should nevertheless be remembered.

The differential diagnosis is admittedly most difficult in cases where ulcer is suspected. There are sufficient grounds for assuming that, owing to the similarity of the symptoms manifested by patients suffering from gastric neurasthenia and those suffering from duodenal ulcer, much confusion in diagnosis has arisen. To such a degree is this the case, that it is indeed not always possible to differentiate between the two conditions. In all cases where an ulcer is suspected it is advisable, in the first instance, to resort to medical measures; and only when these have proved

inadequate can operative interference be regarded as justifiable. If this form of dyspepsia be the precursor of duodenal ulceration, as some suppose, its early treatment by medical methods may be the means of obviating the necessity of a surgical operation at a later stage.

Some authorities contend that this type of dyspepsia differs from sthenic dyspepsia only in the greater intensity of the symptoms by which it is accompanied. Even if we admit that gastric neurasthenia is simply an exaggerated form of hyperfunctional activity, we are still forced to the conclusion that it exhibits characteristics so numerous and so clearly defined as to justify its classification as a separate disease.

Chronic Gastritis is differentiated from gastric neurasthenia by the following characteristics:-
The nervous symptoms are usually mild in character. There is frequent vomiting of blood-stained mucus, and pain is not usually relieved by emesis. Epigastric

tenderness may be present but it is not pronounced, and there is rarely actual pain. The eructations consist of carbon dioxide and, in some cases, hydrogen and marsh gas. In the stomach there is an absence, or marked diminution, of HCl and the gastric ferments. Lactic, butyric and acetic acids are often found to be present in the gastric contents.

Gastric carcimona may be separated from gastric neurasthenia by the frequence of foetid belching and almost total loss of appetite. The vomiting, which is common and often periodic, consists of slightly digested food, mucus and, perhaps, cancer cells. Haematemesis usually occurs; the quantity of blood may be small and is often foetid. It frequently recurs without long intervals. The epigastric pain is less intense in character but more steady, and there are seldom free intermissions during which no distress is felt in the gastric region. A tumour, in the neighbourhood of the stomach, may, or may not, be palpable: if present,

it may be irregular in shape and nodulated, and generally rises and falls with respiration. On examination of the stomach contents, HCl may be entirely absent or markedly decreased; the ferments are generally lost, and lactic acid is often present in excessive amount. Oppler-Boas bacilli may be found microscopically. The stools sometimes contain blood.

The skin is dry and the complexion usually sallow and yellow --- cachexia. Emaciation is progressive and extreme. The spirits are depressed, but remarkably less despairing than in gastric neurasthenia.

Gastric ulcer is more frequent in women whereas gastric neurasthenia is found more often in males. In ulceration, belching is comparatively rare, and, if present, it is usually without any unpleasant odour. Vomiting may occur immediately, or within a short time, after eating. Clear blood may be vomited in large quantity; or, the blood may be in the form of coffee-ground material. The epigastric pain is acute and localised,

and appears shortly after meals. It is increased by pressure, and disappears towards the end of the digestive period. Dorsal pain is present in about a third of the cases: it is located at the twelfth thoracic vertebra one inch to the left of the spinal column. There is no gastric tumour, except in rare cases --- if the ulcer be near the pylorus --- the latter becomes thickened and may be felt as a smooth lengthy body. In the stomach there is a burning sensation with circumscribed boring pains frequently radiating to the back. The gastric HCl, as a rule, is increased; the ferments are also increased, and lactic acid is absent. The stools may be found to contain blood(melaena).

The complexion is commonly fresh, but it becomes pale and anaemic after severe losses of blood. There may be some slight febrile disturbance in connection with the larger haemorrhages, or where adhesive inflammation has been caused by perforation of the ulcer. There is a certain amount of mental depression and

irritability but not nearly to such an extent as in gastric neurasthenia.

PROGNOSIS.

In the majority of cases the prognosis is good. The gastric symptoms of the complaint generally respond to suitable treatment almost immediately, though the improvement is slower in connection with the purely nervous symptoms. Success depends to a great extent upon the voluntary assistance of the patient in carrying out the remedial measures. It is interesting that some severe cases may be cured in a relatively short period, while apparently simple ones may persist for years. Relapses, of course, sometimes occur, and in some cases where these are frequent, the prognosis should be more or less guarded. In a few instances where the extreme severity of the disease has caused excessive weakness with progressive emaciation death may even take place.

TREATMENT OF NEURASTHENIA GASTRICA.

General Management.

The first step in the treatment of gastric neurasthenia is to gain the complete confidence of the patient so that a detailed account of the emotional state and psychical conditions may be obtained. A great many of these patients are very self-conscious and reticent and considerable tact is often necessary in surmounting their nervousness in order to arrive at a proper understanding of the case. On the other hand, however, some of the patients are only too glad to find an intelligent listener and take delight in relating the fullest particulars of their complaints. In these talkative patients there is a tendency to exaggerate the symptoms so as to inculcate the importance of their distressful condition. The sufferings of the patient whether imaginary or magnified are of very real consequence to himself, and hence the physician should endeavour to create a favourable impression by

listening to his patient's story with sympathy and attention.

Every etiological factor should be thoroughly investigated and if possible removed. Displacements of the abdominal viscera and other reflex causes must be carefully searched for, and, if present, treated in an appropriate manner.

Rest is of great importance especially when beginning treatment; and, if at all possible, every case should be sent to bed for at least a week. The time spent in bed will of course vary according to the severity of the symptoms. It should be noted that the longer the disease has existed the longer the patient should rest. In many cases, where the symptoms are comparatively slight, it is difficult to induce the patient to go to bed, and in these cases the advisability of the procedure must be explained to the sufferer in order to obtain his voluntary submission; for compulsory rest in bed, even for a

week's duration, against the will of the patient may produce only unsatisfactory results. It is perhaps hardly necessary to add that the confinement in bed ought to be as complete as possible so that its object may be ultimately attained.

Isolation is of much value in the treatment of certain cases. It is of special use in those cases where the subjective symptoms are exaggerated to a great extent, especially in imposing and pampered patients. The patient may be isolated in his own home or, much better, in a nursing-home where separation from relations, friends and domestic surroundings would be assured. In some cases in which the gastric walls are weakened much harm has been caused by the indiscriminate application of the Weir-Mitchell treatment. Only very few cases of gastric neurasthenia are suited to undergo this form of treatment and they should be selected with the greatest care. For the majority of cases, after a preliminary

rest in bed, the partial rest cure with partial isolation is found most beneficial. As an example of such treatment the following may be submitted:- At 8 a.m. the patient should have brought to him a tumblerful of Arabella water as hot as possible, which he ought to take slowly and in sips. Sometime afterwards he should have a "wet sheet" and subsequently be rubbed thoroughly with vigorous friction. He may then have breakfast which consists of a small quantity of oatmeal porridge; hot milk containing a little tea, chocolate or coffee; uncured fish, bacon, ham, or eggs with ordinary buttered toast. The patient now rests for an hour and at the end of that time his body is subjected to general massage. This should be followed by another hour's rest, after which he may get up and have a walk or graduated open-air exercise before lunch at one o'clock. The mid-day meal should consist of a little clear soup, a grilled chop, cold roast meat or chicken, about half a potatoe and

possibly a little cooked green vegetables; a glass of milk, a small quantity of fruit, a biscuit, and a little St. Ivel "soured-milk" cheese. Between two and three o'clock the patient should lie down and, perhaps, have a short sleep. At three o'clock he may go for a drive or walk, or indulge in suitable exercise, returning home before 5 p.m. to take a raw egg beaten up with a little milk and a teaspoonful of brandy. The patient may then lie down for rest, and enjoy the conversation of an interesting friend. Dinner, about 7.30, should consist of a small quantity of clear soup, white fish, chicken, a cut from a joint with, in some cases, a very little potatoe and green vegetable. Fruit. A glass of milk or, if desired, a little light dry wine. Green vegetables are contra-indicated where there is intestinal flatulence and putrefaction. At 9.30 the patient's abdomen is gently massaged, and about 10 o'clock he should retire for t the night.

The general lines of the above treatment should be continued for some time, each day gradually increasing the amount of physical exercise until the patient, by degrees, is brought round to his ordinary diet and duties which, if necessary, must be moderated according to the circumstances of the case.

Dietetic Treatment.

The necessity for efficient mastication of the food must be enjoined upon the patient. Each mouthful ought to be thoroughly chewed and insalivated before being swallowed. During the mastication of solid food no liquid should be taken to wash down the half-chewed bolus. The saliva is quite capable of performing its function and no substitute such as tea, milk and similar liquid can replace the natural moistening of the solids without an ultimately injurious effect upon digestion.

The mouth should be carefully examined in every

case. All carious teeth must be cleaned and filled, or extracted, any pyorrhoea alveolaris should be actively combated. If the patient has not a sufficient number of teeth for the thorough mastication of food, he should be sent to a good dentist and have artificial ones fitted.

All articles of diet which are known to be indigestible must be avoided. Highly seasoned dishes, smoked and cured foods, sauce and condiments are contra-indicated. The food must be plain, nutritious and well cooked. As a general rule, the quantity of carbohydrates requires to be decreased while the amount of proteid in the form of fresh meat should be increased. According to the investigations of Pawlow the quality of the gastric juice secreted depends to a great extent upon the sapidity of the food in the mouth, and hence the patient must be tempted to eat by a variety of appetizing dishes. Any tendency to monotony in the diet should be particularly evaded. Fat is valuable

in this condition, and may be taken in fairly large quantities as long as the absorptive limit is not exceeded. It may be administered as boiled bacon fat but it is best given in the form of butter --- preferably fresh. Fresh white fish, beef, sweetbread, mutton, fowl, milk and eggs should be given in suitable proportions to make up for the essential reduction in the starches. Potatoes, turnips and vegetables of similar nature must be greatly curtailed in amount, and, in some cases, disallowed altogether. Vinegar, acid drinks, and highly acid fruits should all be avoided. The addition of Sodium Chloride to the food ought to be dispensed with as it is now believed that common salt is a source of the hydrochloric acid present in the gastric juice. It is a habit which few patients have any difficulty in relinquishing. Sugar should be taken only in small quantity; all kinds of pastry and rich cakes must be forbidden, whilst tea and coffee are permissible only when largely diluted with

milk.

These are the principal features in the dietetic treatment of gastric neurasthenia. Various modifications, however, may be necessary to meet the requirements of individual cases.

Medicinal Treatment.

Before attempting to treat the stomach condition the bowels must be thoroughly cleared; and that is best effected by a dose of calomel at night followed next morning by a seidlitz powder, and an enema of olive oil to which five or ten drops of the oil of eucalyptus has been added.

One of the best antacids in the treatment of hyperacidity is bismuth. It possesses sedative properties and does not increase the quantity of gas in the stomach to such an extent as sodium bicarbonate. The two preparations of bismuth which are most generally useful are the subnitrate and the liquor. bismuth.

ammon. cit., but to act efficiently, they must be prescribed in large doses. The subnitrate is best given as a cachet and the sedative action is enhanced if cerium oxalate be added:-

℞. Bismuthi Subnitratis gr. XXV.
Cerii Oxalatis gr. X

Sig. Ter in die, post cib.

Bicarbonate of soda may be added, if desired. It increases the alkalinity, but it also increases the size of the cachet. In cases where there is a lack of tone in the gastric walls, the cachet is rendered more serviceable by the addition of a small quantity of powdered nux vomica. If there is a gouty tendency, it is advisable to include five grains of pulv.guaiaci in each cachet.

For those who prefer a liquid preparation the following combination has been found efficient:-

℞. Liq. Bismuth. ammon. cit. ℥ii
Syrupi Pruni virg. ℥i
Aq. menthae pip. ad ℥i
Misce.
Sig. ℥i Ter in die, post cib.

If flatulence is excessive, eight or ten grains of sodium sulphocarbolate may be added; or, if nux vomica is desirable, four or five minims of the tincture may be given. Should the patient be of gouty type, it is usually advantageous to include half a drachm of tinct. guaiaci ammon., but this drug must be suspended in mucilage.

Whether the cachet or mixture is prescribed, it must be taken sometime after food. The interval will largely depend on the size of the meal; for it is recognized that an excess of acid will require neutralizing sooner after a small meal than a large one. In this matter, however, the patient's own experience is a good guide, and he will soon learn the

best time for the administration of the medicine.

The trochis. bismuth. of the B. P. is an antacid preparation which the patient should carry about with him to counteract any unexpected attacks. Indeed, sucking a clean pebble will often afford some relief when no alkalies are at hand; for it appears that during a gastric attack the saliva secreted may be not only hyper-alkaline but also increased in quantity, and the mechanical irritation of a pebble or lozenge in the mouth causes swallowing of the saliva which then neutralizes the acid.

A valuable drug for allaying gastro-intestinal irritability is silver nitrate. It is best given in one dose at bedtime, and may be combined with quinine and extract of gentian.

Constipation.

To successfully correct the inactivity of the bowels which is so commonly associated with gastric neurasthenia, drastic purgation must be avoided.

Large doses of purgatives, which are a frequent cause of great exhaustion, are followed by more or less reaction and subsequent constipation will be the result. Therefore only the smallest doses must be employed which are sufficient to produce the desired effect; and all powerful drugs are contra-indicated. The action of the medicine given by the mouth may be assisted by abdominal massage and the administration of oil-enemata (Kussmaul). The latter is of special service where there are masses of impacted faeces in the large intestine, but in such cases the oil should not be used alone. Disturbance of these masses is very liable to cause a discharge of toxins into the circulation, with unsatisfactory results. Consequently, it is advisable to add an antiseptic, such as five or ten drops of the oil of eucalyptus, to each enema of olive oil.

The natural mineral waters are beneficial but most of them contain sodium chloride in sufficient quantities

to prohibit their use in gastric neurasthenia with hyper-acidity. The following combination, however, has given satisfaction:-

℞.	Magnes. Sulphat.	gr. XXX
	Magnes. Carb.	gr. X
	Tinct. Nuc. Vom.	♏ iv
	Ess. Menth. Pip.	♏ ii
	Inf. Gent. Co. ad	℥ i

This should be administered three times daily half-an-hour before meals, and followed by a glass of hot water. If desired, the sulphate and bicarbonate of sodium may be substituted for the magnesium salts, in the same doses. The nux vomica is added with the object of imparting tone to the muscle-structure of the gut, and encouraging peristalsis; but this ingredient may be omitted if it is already contained in the cachet or stomach mixture.

In obstinate cases an additional dose of the medicine at bedtime is advantageous. Each dose must

be so regulated that not more than two motions will be produced daily. The idea is to educate the intestines to perform their functions normally; consequently the stimulation must be mild, and, especially, sustained. Gradually the amount of the drug is diminished until the bowels act as the result of the water alone. As an adjunct to the saline treatment, a good plan is to give calomel in doses of a sixth of a grain once a day during the first week, and, afterwards, the drug may be continued in the same dose administered twice a week.

In some cases where there is dilatation or ptosis of the stomach the repeated introduction of fluid may be considered injurious, until the tonicity of the organ has been restored. The most satisfactory remedy, in such cases, is a pill containing $\frac{1}{4}$ grain each of the extracts of nux vomica and belladonna, $\frac{1}{3}$ grain of aloin, and, if the faeces are dry, $\frac{1}{4}$ grain of pulv. ipecac. The pill is given every night until a regular action

of the bowels is established. The aloin may be withheld after a fortnight or so; and later on, the ipecacuanha ingredient can also be removed.

Where haemorrhoids are present as a complication, aloes, owing to its irritant action on the lower bowel, is contra-indicated: and in these cases the aloin in the pill must be replaced by the extract of cascara.

The Colitis of Gastric Neurasthenia:

This condition is satisfactorily treated by administering inspissated ox gall with pancreatin in doses of 2 grains each, in a gelatine-coated pill, twice or thrice daily. Irrigation of the bowel should be performed daily by warm injections of the best Lucca oil. The douche must not be raised more than two feet above the level of the anus, and the patient should be placed on the left side with the hip supported by a pillow. The oil must be retained as long as possible; and the patient should remain in bed during treatment. After a week or so, an injection

of a 1% solution of Argyrol is substituted for the oil, and the symptoms should then disappear.

Convalescence.

The return to health will be greatly aided by the employment of nervine tonics sometime after the acute symptoms have subsided. Lecithin, damiana, phosphorus, valerianate of zinc and the glycerophosphates are all of value in this respect. Good results have been obtained with a combination of drugs such as the following:-

R.	Phosphori	gr. $\frac{1}{100}$
	Ferri Glycerophosph.	gr. ii
	Ext. Damianae	gr. ii
	Zinci Valerianatis	gr. ii

For one pill. To be taken twice a day.

Mechanical Treatment.

(a) Massage:-

If possible, massage should be carried out by the physician himself, who bases his plan of campaign on an intimate knowledge of the requirements of each case. Unfortunately, this is not always convenient, and in such circumstances, the case must be placed in the hands of a well-trained and experienced masseur or masseuse, who can be trusted to obey implicitly the orders of the doctor. The amount, extent, variety and duration of massage must be carefully adjusted to meet the demands of the individual case. As a rule, however, the patient should be more or less completely massaged some time after breakfast, lunch, and at bedtime. If the patient shows signs of fatigue all movements should be temporarily suspended. Mechanical vibration, or sismotherapy, has proved efficacious in a number of cases where, for some reason, proper massage could not be obtained.

It has been shown, by the investigations of Hertz on the sensibility of the alimentary canal, that a sensation of fulness and pain in the stomach is due to a gradual over-stretching or increase in tension of the muscular fibres of the gastric walls. In gastric neurasthenia, one is frequently impressed by the amount of relief afforded by eructation which reduces the tension caused by the dyspepsia. Washing out the stomach, of course, produces a similar effect; but the passage of the tube is unpleasant, and may be dangerous where the presence of an ulcer is suspected.

A method of emptying the contents of the stomach into the duodenum, occurred to Wethered and Mitchell[18] who found that "when the surface of the skin immediately beneath the left costal arch is gently stimulated with the fingers contraction of the stomach occurs." They gave a patient a bismuth-meal, and with the X-rays proved the efficiency of their method. It appears that the skin should be stroked very lightly as strong

stimulation may produce a spasm of the pylorus which stops the passage of gas and fluid. The physician is advised to listen with a phonendoscope over the gastric region for the sounds created by contraction of stomach. When these are perceived, the stimulation of the skin must be stopped immediately, and not resumed until the bubbling and gurgling noises have ceased. The stroking of the skin is then repeated, and so on, till the stomach is emptied. The procedure is best performed about four hours after a meal, and should be done once daily for ten days, then every two days, three days etc. until it is gradually broken off. It is stated that a well-marked improvement in health follows a course of this treatment.

(b) Electrical Treatment.

Electricity is frequently of considerable benefit in the treatment of gastric neurasthenia, especially when combined with the other remedies at our disposal. The success of the electrical treatment

largely depends upon the ability of the medical man in producing physiological effects by the methods which he intends to adopt. The most suitable current for each patient must be chosen, and the strength and length of the treatment decided upon with care. Should the physician be insufficiently familiar with the details of electrical treatment, the case must be placed in charge of an electrical expert who is also a qualified medical man. The forms of electricity usually employed are the constant galvanic current, static electricity, currents of high-frequency, and the triphase or monophase alternating current.

(c) Hydrotherapy:-

It is well known that the application of hot water has a sedative effect upon the nervous system, while, on the other hand, cold water possesses a stimulating action, and increases the metabolism of the body. When hot water is used, a dilatation of the capillaries is produced, which is soon succeeded by contraction,

and, if a tonic effect on the vaso-motor system be desired, it can be accomplished by applying cold water to the skin when contraction of the vessels has commenced. The best results from the alternation of hot and cold water are obtained when the application of the method is restricted to a portion of the body, and not by complete immersion.

The following forms of treatment are beneficial, when indicated, and properly employed:-

Wet towel friction:

A large Turkish towel is wrung out of cold or slightly tepid salt water, and the patient standing upright is vigorously rubbed all over with it. Afterwards he should be carefully dried, and dressed immediately. Sea-salt should be used if ordinary sea-water cannot be procured.

Turck's Ice-massage of the abdomen:-

For stimulation of the stomach and intestines. A very hot bath is given and immediately afterwards the patient is laid flat upon a table and the whole of

the abdomen is then rubbed with a cake of ice and massaged.

The cold abdominal douche:-

The patient is placed in an ordinary bath with sufficient warm water to cover the whole of the body except the abdomen. A jug of tepid water is then poured upon the abdomen from a height of two or three feet. The temperature of the water is daily reduced until it is quite cold. The number of jugfuls is increased and the distance above the patient gradually lengthened. This method is of utility in the treatment of constipation.

The abdominal wet pack:-

For the treatment of intestinal neuroses and mucous colitis. A length of Turkish towelling (about four yards) is wrung out of hot or cold water and closely applied round the body of the patient who is standing upright. After being well wrapped up in mackintosh sheets, he lies down for a variable period,

--- generally an hour is sufficient. If hot water has been employed, warm blankets are applied over the mackintoshes and the patient is immediately placed in bed and covered up.

The wet sheet:-

For restoring the tonicity of the skin in relaxed conditions. An ordinary sheet is wrung out of cold water and is wrapped closely round the patient's body. The patient is then slapped, rubbed and massaged through the sheet until a sensation of heat is produced.

S U M M A R Y.

Etiology:-

Mental, moral, physical and dietetic violation. Neurotic parentage.

Pathology:-

Abnormality or perversion of gastric secretion --- usually hyperchlorhydria. Hyper-excitability of the motor and sensory nerves of the stomach.

Symptomatology:-

Mental depression, physical lassitude, introspection, hypersensitiveness, abnormal dreads, panics and claustrophobia. Headaches, insomnia, tinnitus aurium, uneasy and constricting sensations, vaso-motor disturbance, palpitation, flatulence, eructation, heartburn, pyrosis, epigastric pain, intestinal putrefaction, mucous colitis, constipation, borborygmi and peristaltic unrest.

Diagnosis:-

Differentiate from gastric catarrh, carcinoma and ulcer.

Prognosis:-

In most cases, good. In progressive emaciation extreme weakness with relapses, guarded.

Treatment:-

Remove causative factors, if possible. Recommend life on physiological basis. Revise dietary --- decrease carbohydrates, increase proteids. Correct the gastric condition. Combat constipation. Calm the mental state. Strengthen the vitality.

BIBLIOGRAPHY.

1. Leube:

Ueber nervöse Dyspepsie. Deutsches Arch. für Klim. Medicin, Bd. xxiii. 1879.

2. Stiller:

"Die nervösen Magenkrankheiten." Stuttgart. 1884.

3. Geigel und Abend:

"Die Salzäuresecretion bei Dyspepsia nervosa," Virchow's Archiv. Bd. cxxx.

4. Philip Hicks:

"On Morbid States produced by chronic movable Kidney," Practitioner: Vol. lxxxviii, No.3. p.451.

5. A. F. Hertz:

"Investigations of the motor functions of the Alimentary Canal by means of the X rays". B.M.J. No. 2,666. 3 Feb. 1912.

6. Stiller:

Arch. f. Verdauungs-Krankheiten, Band vii, p.275.

7. Boardman Reed:

"Diseases of the Stomach and Intestines," p.871.

8. Hemmeter:

"Diseases of the Stomach". 1901.

9. Ewald:

"Diseases of the Stomach". 1892.

10. Jürgens:

"Verhandlungen des iii. Congresses für innere Medicin". S. 253.

11. Burkhart:

"Zur Pathologie der Neurasthenia gastrica."
Bonn, 1882.

12. Leven:

"Estomac et Carvau". Paris, 1884.

13. Ewald:

"Verhandlungen des Congresses für innere Medicin,"
1884. S, 232.

14. Mobius:

"Ueber nervöse Verdauungsschwäche des Darms,"
Centralblatt für Nervenheilkunde von Erlenmeyer,
vii Jahrgang, 1884. No.1.

15. Cherchewsky:

"Contribution à la pathologie des nérvoses
intestinales." Revue de Médicine, 1884, No.3.

16. Herter and Smith:

"New York Medical Journal", June 22, 29;
July 6, 13, 20. 1895.

17. Rodzajewski:

"Ueber die Digestiondauer im Magen als diagnostische Methode." Petersburg. med. Wochenschr.,
1885, Nos. 32, 33.

18. F. J. Wethered:

"The Nature and Treatment of certain forms of
Indigestion." Practitioner, Dec. 1911.